

## **REMARKS**

### **1. Non-Fee AMENDMENT**

In relevant part, the present **AMENDMENT** involves the addition of dependent claims 3/1 and 4/1 and independent claim 5, giving a present total of 5 claims, of which 3 are independent. There are no multiple dependent claims. The application filing fee paid previously covered 20 total claims and three independent claims.

Thus, it is believed no additional fee for claims is required for this **AMENDMENT**.

However, if the Patent and Trademark Office determines a fee for claims is required, please charge such fee to the undersigned's deposit account, 04-0039 (ref. 50598.1).

### **2. Entry of AMENDMENT**

At page 1 of the specification, the reference to the parent application is corrected as required by the examiner.

Amended independent claims 1 and 2 and new dependent claims 3/1 and 4/1 specify a coupled pipe assembly and components for coupling pipes together according to the present invention. The assembly and components are disclosed, for example, in Figure 8 and at page 6, line 7 through page 7, line 11 of the as-filed application.

New claim 5 describes a method of adapting two pipes for coupling by forming bell and spigot cuffs on the pipe ends according to the present invention. The components are depicted in Figure 8 and the components and methods for forming the components are described at page 6, line 7 through page 7, line 11 of the as-filed application.

No new matter is involved in the claim changes or in the resulting claims. Entry of the changes and of this **AMENDMENT** are requested.

**3. Traverse of Objection**

In the present Office Action, the examiner objected to the sentence which starts at page 1, line 4 of the specification and refers to the prior application. The correction required by the examiner has been implemented, as part of this AMENDMENT. Reconsideration and withdrawal of the objection are requested.

**4. Traverse of Rejections of Claims 1 and 2 under 35 U.S.C. 103(a) Based upon Converse US 283,975 and Clark US 214,812**

In rejecting independent claims 1 and 2 separately (that is, in four separate rejections under 35 U.S.C. 103(a)) based upon Converse '975 and Clark '812, the examiner takes the position that, first, Converse '975 and Clark '812 each disclose a spigot cuff and a bell cuff and that the spigot cuff is inserted into and joined to the bell cuff, or the sizes of the cuffs are adapted for such insertion and joinder. Second, the examiner indicates Converse '975 and Clark '812 disclose packing ring(s) and the use of plastic in such rings would have been obvious at the time the present invention was made.

These positions and the four rejections are traversed.

**a. Disclosure of Converse US 283,975**

Converse '975 teaches flange joint apparatus for thin metal tubes. Specifically, Converse '975 teaches a metal flange union A comprising two halves B, C which join the ends of two pipe sections S, S. The joint comprises at least three mechanical connections and at least three seals.

The physical connections include:

First, the flange union halves B, C form a butt joint which is secured by bolts f, f which pass through holes e, e in the flanges d, d of the flange union halves.

Second and third, the two pipe sections S, S are connected to their associated flange union halves B, C, by locking lugs t, t on the outside of the ends of the two pipe sections and mating locking seats r, r on the inside of the flange union halves.

The seals include:

First, the flange union halves B, C are sealed to one another by a packing ring, k, which is compressed by lip, l, of part C against seat, h, of part B.

Second and third, the flange union halves B, C are sealed to their associated pipe sections S, S by caulking material in recesses defined between the outside of the pipe sections and annular extensions m, m extending inwardly from the flange union halves along the outside of the pipe sections.

***b. Patentability of Claims 1 and 2 over Converse US 283,975***

Applicants' amended claim 1 specifies a composite metal and plastic pipe assembly comprising first and second metal pipes; a spigot cuff formed on and embedding an end of the first pipe; and a mating bell cuff formed on and embedding an end of the second pipe. Claim 1 specifies a single mechanical joint or connection, the spigot-in-bell coupling.

Comparing applicants' claim 1 directly to the teaching of Converse '975, first, claim 1 specifies mating bell and spigot cuffs. Converse '975 uses butt-joined flange halves B, C which are bolted together.

Second, claim 1 specifies a single mechanical connection, that formed by the mating bell and spigot cuffs. In contrast, Converse '975 uses three mechanical connections: the two flange halves B, C are separately mounted to two pipes using tab-in-groove connections; and the flange halves form a butt joint and are bolted together.

Third, but not exhaustively, claim 1 does not specify a separate seal, that is, the spigot and bell joint is self-sealing. In contrast, Converse '975 uses three separate seals, including the packing ring, k, which is compressed by the butt-joined flange halves B, C, specifically by lip, l, in seat, h.

Applicants' amended claim 2 specifies components for a composite metal and plastic pipe assembly, specifically the spigot cuff and the bell cuff of claim 1, which are adapted for coupling.

Converse '975 does not teach or suggest the combination of claim 1 or that of claim 2 .  
Reconsideration and withdrawal of the rejections of claim 1 and 2 based upon Converse '975 are requested.

***c.     Disclosure of Clark US 214,812***

Clark '812 teaches a screw-on pipe coupling and uses compression pickings to provide a seal. The pipe coupling comprises two circular coupling plates a and b which join the ends of two pipe sections d, d. The joint comprises four mechanical connections and two seals.

The mechanical connections include:

First and second, the threaded end of one pipe d is screwed into threaded hole a<sup>1</sup> in coupling plate a and the threaded end of the second pipe d is screwed into threaded hole b<sup>1</sup> in coupling plate b.

Third, the coupling plates a and b are held together by bolts c, c, which pass through holes in the rims of the coupling plates.

Fourth, circular projection a<sup>2</sup> on coupling plate a seats in circular groove or channel b<sup>2</sup> in coupling plate b when the coupling plates are bolted together.

The seals include:

First, a packing ring f of suitable material is placed in the circular groove b<sup>2</sup> and compressed by mating but smaller projection a<sup>2</sup>, providing a seal between the two coupling plates a and b.

Second, a packing ring g of suitable material is placed on surface a<sup>3</sup> of coupling plate a between opening/hole a<sup>1</sup> and projection a<sup>2</sup>, and is compressed when the two coupling plates a, b are bolted together, providing a seal between the coupling plates and the pipe sections d, d.

***d. Patentability of Claims 1 and 2 over Clark US 214,812***

Applicants' amended claim 1 specifies a composite metal and plastic pipe assembly comprising first and second metal pipes; a spigot cuff formed on and embedding an end of the first pipe; and a mating bell cuff formed on and embedding an end of the second pipe. Claim 1 specifies only one mechanical joint or connection, the spigot-in-bell coupling.

Contrasting amended claim 1 to the teachings of Clark '812, claim 1 specifies a self-sealing pipe assembly which comprises a bell and spigot joint. Clark '812 uses butt-joined coupling plates a and b.

Claim 1 specifies a plastic spigot cuff molded onto one pipe, a plastic bell cuff molded onto a second pipe, and a spigot-in-bell joint formed by the two cuffs. Clark '812 uses four mechanical connections, that is, two pipes are screwed into two coupling plates; the coupling plates are fastened together by bolts; and the coupling plates are also joined by a circular projection-in-groove connection which supports and locates two seals.

Finally, but not exhaustively, claim 1 does not specify a separate seal, that is, the spigot and bell joint is self-sealing. In contrast Clark '812 uses two separate seals (packing rings f and g).

Applicants' amended claim 2 specifies components for a composite metal and plastic pipe assembly, specifically the spigot cuff and the bell cuff of claim 1, which are adapted for coupling.

Clark '812 does not teach or suggest the combination of claim 1 or that of claim 2 .

Reconsideration and withdrawal of the rejections of claim 1 and 2 based upon Clark '812 are requested.

***e. Examiner's Remarks regarding Converse '975 and Clark '812***

As stated at the beginning of this section, section 4, in rejecting independent claims 1 and 2, the examiner stated that, first, Converse '975 and Clark '812 both disclose spigot and bell cuffs, and the spigot cuff is inserted into and joined to the bell cuff (or the sizes of the cuffs are adapted for such insertion and joinder) and, second, both Converse '975 and Clark '812 disclose packing ring(s) and thus the use of plastic in such rings would have been obvious at the time the present invention was made.

Again, these positions are traversed. As discussed at length above, both Converse '975 and Clark '812 disclose butt joints which are assisted by multiple mechanical fasteners and seals. Converse '975 and Clark '812 do not disclose spigot and bell joints and, specifically, do not teach or suggest the molded, embedding cuffs specified in applicants' amended claims 1 and 2. Furthermore, amended claims 1 and 2 do not recite a seal or packing ring. In applicants claims 1 and 2, the cuffs are the joint and the seal. The disclosure and necessary use of packing rings in Converse '975 and in Clark '812 are thought to illustrate the unobvious differences between the invention specified in applicants' claims 1 and 2 on the one hand and Converse '975 and Clark '812 on the other hand.

Reconsideration and withdrawal of the rejections based upon Converse '975 and Clark '812 are again requested.

**5. Patentability of New Claims 3/1, 4/1 and 5**

Claims 3/1 and 4/1 are patentable over the applied patents for the reasons discussed above regarding parent claim 1.

Furthermore, claim 3/1 adds to claim 1 plastic coatings formed on the two pipes and plastic welds between the plastic cuffs and the plastic coated pipes. The applied patents do not teach or suggest the claim 3/1 implementation of the claim 1 pipe assembly with plastic coated pipes and plastic welds.

Claim 4/1 adds, to the combination specified in claim 1, metal cores which are embedded in the two cuffs. The combination of the pipe assembly of claim 1 implemented with metal cores in the two plastic cuffs is not taught or suggested by the cited patents.

New claim 5 specifies the method of adapting first and second pipes for coupling, comprising the steps: molding a plastic, spigot-forming cuff around the periphery of and embedding the first pipe; and molding a plastic, bell-forming cuff around the periphery of and embedding the second pipe.

As discussed at length in a prior section, Converse '975 forms three mechanical connections and three seals including a discrete packing ring, whereas Clark '812 forms four mechanical connections and two seals including discrete sealing rings. The two patents do not teach or suggest, individually or collectively, the claim 5 method of adapting two pipes for coupling by

Application: 10/806,657  
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**AMENDMENT**  
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Page 13

molding a spigot cuff on one pipe and embedding that pipe in the spigot cuff; and molding a mating bell cuff on the second pipe and embedding that pipe in the bell cuff.

Favorable consideration of new claims 3, 4 and 5 is requested, along with allowance of these claims.

**6. Summary and Action Requested**

Entry of this AMENDMENT is requested. The examiner is requested to reconsider and withdraw the objection to the specification. Also, the examiner is requested to reconsider and withdraw the rejections of claims 1 and 2 under 35 U.S.C. 103 as being unpatentable over Converse US 283,975 or Clark US 214,812. Allowance of amended claims 1 and 2 is requested. In addition, favorable consideration of new claims 3, 4 and 5 and allowance of new claims 3, 4 and 5 are requested.

If it appears the undersigned has misunderstood any aspect of the Office Action, the examiner is invited to telephone the undersigned at the telephone number listed below, so that the misunderstanding can be corrected

Respectfully submitted,  
LAW OFFICE OF PHILIP A. DALTON

Date: July 26, 2005

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